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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,004	09/24/2004	Jacobus Mathias Hendrikus Dirks	TS1168US	7659
7590 Charles W Stewart Shell Oil Company Intellectual Property PO Box 2463 Houston, TX 77252-2463				
EXAMINER				
HANOR, SERENA L				
ART UNIT		PAPER NUMBER		
1793				
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04/17/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/509,004

**Applicant(s)**

DIRKX ET AL.

**Examiner**

SERENA L. HANOR

**Art Unit**

1793

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6, 15, and 16 is/are allowed.
- 6) ☒ Claim(s) 1-5 and 8-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB08)  
Paper No(s)/Mail Date 10/09/2007.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

Claims 5 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- i. Claims 5 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: if the air has a temperature higher than 25C before or after it is cooled.

### ***Response to Arguments***

Applicant's arguments, see Remarks, filed 12/27/2007, with respect to the rejection(s) of claim(s) 1-16 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of a different interpretation of the previously applied art, Haddad et al.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 8, and 10-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Haddad et al. (U.S. Patent No. 5,043,517).

Haddad et al. discloses the regeneration of an FCC coke-containing catalyst by contacting it with an oxygen-containing gas to effect combustion of the coke, the subsequent removal of the coke, and regeneration of the catalyst (Abstract). In order to reduce the water partial pressure in the regenerator, the regeneration gas, i.e. air, can be pressurized in a compressor (an air blower, part of the gas transport unit), cooled in a heat exchanger (cooling unit, part of the gas transport unit) with a cooling fluid such as steam, and passed through a knock-out drum to remove any condensed water (part of the gas transport unit) prior to being fed to the regeneration zone (in a regeneration unit) (col. 18 lines 61-68, col. 19 lines 1-12). The coke-containing catalyst and the oxygen-containing gas may be cooled to 38-93°C and 27-49°C (which implies that the temperature of the gas was above 25°C before and after it was cooled), respectively, before entering the regeneration zone (col. 4 lines 19-24, col. 18 lines 55-57, col. 18 lines 61-67, col. 19 lines 1-12). Catalyst regeneration at such low temperatures and low water content increases the catalyst life and the regenerated catalyst activity (col. 5 lines 42-46).

The regenerator comprises inlet means where the stripped catalyst and the air are fed and outlet means where the decoked catalyst and other byproducts such as effluent gases are expelled (Fig. 2, also col. 14). At the inlet means, there is a gas

Art Unit: 1793

transport unit (compressor, heat exchanger, and knock-out drum) and a cooling unit (heat exchanger) in the transport unit.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The person having ordinary skill in the art has the capability of understanding the scientific and engineering principles applicable to the claimed invention. The references of record in this application reasonably reflect this level of skill.

Claims 1-5 and 8-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haddad et al.

Haddad et al. discloses the regeneration of an FCC coke-containing catalyst by contacting it with an oxygen-containing gas to effect combustion of the coke, the subsequent removal of the coke, and regeneration of the catalyst (Abstract). In order to reduce the water partial pressure in the regenerator, the regeneration gas, i.e. air, can be pressurized in a compressor (an air blower, part of the gas transport unit), cooled in a heat exchanger (cooling unit, part of the gas transport unit) with a cooling fluid such as steam, and passed through a knock-out drum to remove any condensed water (part of the gas transport unit) prior to being fed to the regeneration zone (in a regeneration unit) (col. 18 lines 61-68, col. 19 lines 1-12). The coke-containing catalyst and the oxygen-containing gas may be cooled to 38-93°C and 27-49°C (which implies that the temperature of the gas was above 25°C before and after it was cooled), respectively, before entering the regeneration zone (col. 4 lines 19-24, col. 18 lines 55-57, col. 18 lines 61-67, col. 19 lines 1-12). Catalyst regeneration at such low temperatures and low water content increases the catalyst life and the regenerated catalyst activity (col. 5 lines 42-46).

The regenerator comprises inlet means where the stripped catalyst and the air are fed and outlet means where the decoked catalyst and other byproducts such as effluent gases are expelled (Fig. 2, also col. 14). At the inlet means, there is a gas transport unit (compressor, heat exchanger, and knock-out drum) and a cooling unit (heat exchanger) in the transport unit.

Haddad et al. differs from the instant application in that it uses a heat exchanger instead of an industrial chiller to cool the air.

It would have been obvious to one of ordinary skill in the art at the time the invention was made **to have modified** the process of Haddad et al. *by using an industrial chiller* instead of a heat exchanger (Haddad et al. col. 18 lines 61-68, col. 19 lines 1-12), as per Applicants' claim 9, because of the known advantage that both a heat exchanger and an industrial chiller can be used to cool a process stream. See *In re Fout*, 675 F.2d 297, 213 USPQ 532 (CCPA 1982).

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Hegarty (U.S. Patent No. 4,542,114), Hedrick (U.S. Patent No. 4,595,567), .

Claims 1-5 and 8-14 have been rejected.

Claims 6, 7, 15, and 16 have not been rejected under either 35 U.S.C. 102 or 35 U.S.C. 103 because the limitations of these claims are not taught in the reference(s) of record.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SERENA L. HANOR whose telephone number is (571)270-3593. The examiner can normally be reached on Monday - Thursday 8:00 AM - 5:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Art Unit: 1793

SLH

/Timothy C Vanoy/  
Primary Examiner, Art Unit 1793